



# UNITED STATES PATENT AND TRADEMARK OFFICE



UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,524	09/16/2003	Masahiro Nakayama	52775-024	1716

7590 08/08/2006

Stephen A. Becker  
McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER

NGUYEN, DUNG V

ART UNIT	PAPER NUMBER
----------	--------------

3723

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/662,524	<b>Applicant(s)</b> NAKAYAMA ET AL.	
	<b>Examiner</b> Dung V. Nguyen	<b>Art Unit</b> 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-10 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (USPN 6,933,234). Nakamura et al discloses a method of chamfering a wafer 90 comprising preparing a soft whetting apparatus having a continually-fed tape 2a and whetting granules implanted on the tape 2a, bringing the tape 2a into inscribing contact with an edge of the circular wafer 90 at a pressure, supplying the tape 2a with whetting liquid which is water, rotating the wafer 90 in the inscribing contact with the tape 2a, feeding the tape 2a at a speed, abrading the edge of the wafer 90 by the granules implanted on the tape 2a into edge roughness of 3 nm or less, wherein the pressure acting between the wafer edge and the tape is 1 kgf, wherein the granules fixed on the tape 2a is diamond having a size of #4000, wherein the tape 2a is made of polymer resin (note Fig. 1, 6B, 7 and 15A, col. 5, line 49 to col. 6, line 35, col. 7, lines 8-22, col. 12, line 53 to col. 13, line 18, col. 20, lines 46-52). Nakamura et al discloses the claimed invention as described above, however, Nakamura et al does not expressly disclose the contact between the wafer edge and the tape has a wide angle area of 40 degrees to 90 degrees or the feed speed of the tape is 5mm/min to 60mm/min. It would have been obvious to one having ordinary skill in the art at the time

Art Unit: 3723

Furthermore, figure 6B implies that the angular contact angle is in the range of 40 to 90 degrees.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

7. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung V. Nguyen whose telephone number is 571-272-4490. The examiner can normally be reached on IFP Program.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

the invention was made to select the contact between the wafer edge and the tape has a wide angle area of 40 degrees to 90 degrees, or the feed speed of the tape is 5mm/min to 60mm/min, since it was held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

3. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (USPN 6,933,234). Nakamura et al discloses the claimed invention as described above, however, Nakamura et al does not disclose the semiconductor wafer is gallium nitride, indium nitride or aluminum nitride. Nakamura et al discloses in col. 20, lines 46-52 that another semiconductor wafer beside Si wafer can also be used. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of Nakamura et al with gallium nitride, indium nitride or aluminum nitride wafers.

#### ***Allowable Subject Matter***

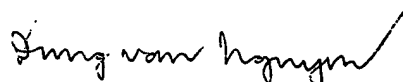
4. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

5. Applicant's arguments filed on 17 July 2006 have been fully considered but they are not persuasive. Applicant argues that Nakamura et al's contact is not inscribing, but rather vertical contact. Nakamura et al clearly shows in figure 6B that the elastic matrix is brought into angular inscribing contact with the edge of the circular wafer.

Art Unit: 3723

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
**DUNG VAN NGUYEN**  
**PRIMARY EXAMINER**

DVN  
August 3, 2006